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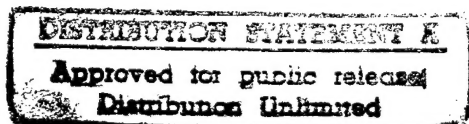
SCIENTIFIC RESEARCH AT CHUNG-SHAN HOSPITAL  
by Lu Pei-chun, Chiang Li-pen, et. al.

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MEDICAL CLINICS ACTIVELY SUPPORT AND HELP AGRICULTURE

- COMMUNIST CHINA -

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## FOREWORD

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## SCIENTIFIC RESEARCH AT CHUNG-SHAN HOSPITAL

- COMMUNIST CHINA -

The following is the translation of an article by Lu Pei-chun, Chiang Li-pen, Hsu Lu-wen, and Chang Chien-p'ing in Chieh-fang Jih-pao, Shanghai, 31 August 1960, page 3.

### The Birth of the Stationary Perpendicular Artificial Heart and Lung

An operation on the heart was first performed in Chung-shan Hospital. As soon as the chest of the patient was opened, the heart stopped beating. The artificial heart at the side of the patient started working, venous blood going in through the entrance, fresh blood coming out from the exit-substituting for the functions of the patient's heart and lungs. Half of an hour after the operation the patient woke up. The two millimeter cardiac septal defect of the patient was corrected. This stationary perpendicular artificial heart and lung is a victorious result of the co-operation of members of Shanghai City Chest Research Laboratory, the surgeons of Chung-Shan Hospital, and several concerned units who worked under the leadership of the Party.

With the help of this type of artificial heart and lung, Chung-Shan Hospital has already overcome five mysterious complicated heart diseases.

Yet, two years ago it was in a completely different situation. At that time Chung-Shan Hospital announced its success in a cardiac septal defect operation which was done by the use of anaesthesia at a low temperature. Within a few weeks, many heart disease patients demanded treatment. If anaesthesia at a low temperature is used for an operation the maximum time is eight minutes. It requires ten minutes to do a complicated heart operation, and therefore it is necessary to have an artificial heart and lung to substitute for the functions of the human heart and lungs.

How was this going to be accomplished? The Party urged everybody "to get rid of superstition, to broaden their thinking, and to act as they thought." This slogan encouraged everyone. Dr. Shih Mei-chen first brought up his plan on making an artificial heart and lung, and it stimulated the enthusiasm of all the other doctors. At this time, the party committee which was directing the hospital immediately gave its

support by saying, " Let us do it by ourselves. Even if we have to give up a greater amount of energy, we still have to do it." These words from the Party strengthened their confidence. All the doctors were determined to build China's first stationary perpendicular artificial heart and lungs by means of their wisdom and hard work so as to fill up the gap in the study of medicine.

Without any complete reference or a dependable plan, the making of a highly efficient stationary perpendicular artificial heart and lung was really a very difficult thing. The director from the Party introduced to the doctors a method of research. That is, they were to go to the work shop and teach the mechanics some principles of medicine, then try to make the artificial heart and lung with the help of the mechanics. Thus doctors with axes and files in their hands, together with mechanics who had watched experiments and operations, started their discussions and work. After a short time, the first artificial heart and lung was made, but it failed to work in more than seventy experiments with animals. Some people were discouraged by this, but the party committee immediately pointed out: "In order to climb up to the peak of science, one has first to reach the highest peak of thought. If one is afraid of failure, all the work done will be wasted. Success is in front of us, so do not stop half way." Again these words strengthened the doctors and the research work progressed steadily.

Very soon, under the Party-supported unified organization, many brother units and factories helped in the research work on the artificial heart and lung. When alternating motors were needed the Shanghai Machine Factory donated two of them. Several other factories also offered their help either in materials or in manpower.

With the cooperation of the Shanghai Chest Disease Department and certain other units, the first stationary perpendicular artificial heart and lung was produced after 300 experiments. The United States had taken twenty-two years to build the first artificial heart and lung, but it took less than two years for China to do the same thing. Besides, only a few countries have succeeded in making the stationary perpendicular heart and lung.

#### Fighting Certain Peculiar Diseases

The success in the building of the artificial heart and lungs gave rise to a vigorous reaction within the hospital. Many people asked themselves this question: "People in the chest surgery department are not more capable than we are. If they could reach the climax why can not we do it?" The party committee pointed out to them the way to achieve their ambition: "Destroy the main diseases: save patients in emergency cases; attack the different kinds of peculiar diseases."

The young doctors of the internal medicine research group decided

first to fight the horrible, high death rate of acute pneumonia. More than ten young doctors formed the committee for the study of acute pneumonia. They extended their knowledge beyond that of the books and increased the usage of adrenalin. Nine patients had been cured in this way. Yet, when the party committee started the discussion on the examples of diseases, the committee pointed out that the young doctors had great strength and enthusiasm and were leaders in fighting against superstition and in doing creative work, but they lacked practical experiences and methods. They still lacked the ability to lead the medical work of saving the whole country. The party committee invited some older doctors and some doctors of Chinese medicine to join the rescue committee, forming a committee for the cooperation of all the departments in the hospital. In this way, they could continue to climb to the peak of surgery without stopping.

The process of overcoming acute pneumonia is also a process of the medical workers fighting against superstition, liberating their thinking, and correcting their subjective opinions. Within three months, they saved twenty-six lives, greatly lowered the death rate for acute pneumonia and set a new record.

#### Victorious Results with the use of Native Methods

As the Party has said, the procedure of climbing to the peak of science is also the procedure of climbing to the peak of thought, and the changing and training of men. The ambition of climbing the peak of science became greater and greater. It led to fruitful results in the study of science and also provided good training. They thus stepped out of the capitalistic idea of study.

A year ago, the party committee in the hospital asked the urinary excretion research group of the surgery department to try to make an artificial kidney. Some people thought that since other countries had made it, it could be purchased abroad; and others thought that in studying science, it is necessary to study only the most important subjects and thus there was no reason for them to make the artificial kidney. Thus they left this subject untouched. In February of this year, the surgery department decided to try again. They also put the subject of making an artificial kidney before the doctors of the urinary excretion department. After the experimental work had started, the doctors often went to observe and discuss their experiments with doctors in other hospitals. They went to certain factories to borrow motors and to try to make the connection pipes for transmission tubes. Due to the lack of materials, the work was slowed down.

Again the Party pointed out: "Our research work must not simply copy others' results, but should be creative. By combining native and western methods, we can show our determination." The party's instructions

showed a way to all: "Why don't we use native equipment and materials?" Again they started a new plan. At last they designed a plan for making an artificial kidney which was small in volume but highly effective.

In late March, the hospital received a patient who was seriously ill with scurvy. In order to cure this disease, an artificial kidney was needed. The party committee issued this call: In order to save the patient we must finish making the artificial kidney in one night. That night there was an exciting battle in the hospital's work shop, and the next morning an artificial kidney was born. After two more days of struggle, the artificial kidney was successful in the experiments with animals.

The artificial kidney was used for a patient with a urinary obstruction, and it showed good results. This simple, convenient, and low-priced artificial kidney made with Chinese materials has shown significant results in curing diseases and is much better than foreign ones.

#### Continuous Advancement

Under the leadership of the party committee, Chung-shan ho Hospital's scientific research department has developed a prosperous, mass movement. Today, the hospital's research work and revolutionary techniques have brought great success. After the invention of the artificial heart and lung and the artificial kidney, they succeeded in making artificial blood vessels with the technical help of the Shanghai City Silk Industry. This gave good results in clinical usage and greatly raised the percentage of effective cures. Now, not only are they successful in curing heart diseases, hardened blood vessels, hepatic diseases, and acute pneumonia with comparatively advanced methods, but they can guarantee safety in the correction of cardiac septal defects, in low temperature removals of the aorta, in homoplastic transplantations, and in carrying out Fallot's tetralogy by circulation of the blood outside of the body. At the same time, through the combined use of Chinese and Western medicine, comprehensive treatments for ulceration, nerve disorders, lung abscesses, hepatitis, and certain chronic diseases have been successfully developed. In the past, surgical treatments have been used for curing appendicitis, cholecystitis, and ascarids in the bile duct. Now, after the adoption of comprehensive methods of treatment with Chinese and Western medicine, most of these diseases do not require an operation. Some primary results have been achieved in research on the formerly uncured coronary arteriosclerosis. This outstanding success shows that the medical techniques of Chung-shan Hospital have already reached an advanced level in these respects which allows more rapid treatment of patients. Chung-shan Hospital has made great contributions to the health of the people.

## MEDICAL CLINICS ACTIVELY SUPPORT AND HELP AGRICULTURE

[Following is the translation of an article in Chieh-fang Jih-pao, Shanghai, 31 August 1960, page 3.]

To promote the health of the peasants, the chemical department of the Shanghai Pharmaceutical Industry Research Institute has progressed actively in the research work for developing medicine for the prevention of the five major human intestinal parasites.

In the first half of 1960, with the help of the concerned units of the institute, the hook worm, which is very common and seriously affects the working ability of the peasants, was attacked. Not long ago, a convenient orally-administered drug, which is 70% effective, was successfully developed. Besides this, numerous new experimental medicines for the diseases caused by blood-sucking parasites, black fever, and silk-worm diseases, have been successfully manufactured. At present, they are being applied experimentally and clinically for testing their effects. During the process of research, this institute tries to decrease the cost for manufacturing the medicine in order to lessen the medical expenses of the peasants. For instance, quinine, the effective remedy for malaria, was originally more expensive than it is now. After decreasing the cost of production, the cost was reduced to 75% of what it was before.